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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,468	08/24/2005	Naohiko Uchiumi	264532US0PCT	2239
22850 7590 04/17/2009 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER THEODORE, MAGALI P				
ART UNIT		PAPER NUMBER		
1791				
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/521,468

Applicant(s)

UCHIUMI ET AL.

Examiner

Magali P. Théodore

Art Unit

1791

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5, 6 and 8-25 is/are pending in the application.
- 4a) Of the above claim(s) 17-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6 and 8-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Applicant's amendments filed January 7, 2009 and February 5, 2009 were received.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

Claims 1-3, 8-13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ninomiya et al. (EP 1,085,028 A1), henceforth **Ninomiya** in view of Yamauchi et al. (US 5,302,417), henceforth **Yamauchi** and Kawahara et al. (EP 1,072,616), henceforth **Kawahara 616**.

Regarding **claim 1** step 1, Ninomiya discloses a process for making ethyl vinyl alcohol copolymer pellets beginning with an ethylene vinyl alcohol (EVOH) solution (p 4 In 26) containing methanol (p 3 In 55-57), an alcohol whose boiling point is less than 100 C. Ninomiya discloses a solution that is 20 % to 55 % EVOH (p 5 In 13-14) in an aqueous solvent that is 20 % to 95 % alcohol (p 5 In 10-11). With a solvent that is 95 % alcohol and a solution which is between 20 % and 55 % EVOH, the solution has between 43 and 76 parts alcohol per 100 parts EVOH. The upper end of this range meets the 50 part minimum recited by the claim. Ninomiya discloses placing EVOH solution into a vessel (saponification column, p 12 In 12), contacting the solution with water in the vessel to let out said alcohol with water (p 5 In 27-29) and then letting out from the vessel an EVOH copolymer hydrous composition containing as little as 5 %

water and no alcohol (p 7 ln 14-15), meeting the requirements set by the claim that the hydrous copolymer contain 10 to 1000 parts water and 0 to 10 parts alcohol.

Ninomiya does not specify that the water is vapor. However, Yamauchi teaches introducing the EVOH copolymer solution into to a vessel and contacting the solution with water vapor in said vessel to let out said alcohol with water (col 21 ln 28-38). Steam is used so that the water might mix with the methanol vapor (col 21 ln 30) to change the solvent composition (col 21 ln 34). Therefore it would have been obvious to an ordinary artisan to use water vapor in the method taught by Ninomiya because Yamauchi teaches using steam add water to the vaporous methanol solvent.

Regarding claim 1 step 2, Ninomiya discloses cutting the EVOH copolymer hydrous composition from step 1 to obtain EVOH copolymer hydrous composition pellets (p 5 ln 56-57).

Ninomiya does not teach cutting the EVOH copolymer hydrous composition in a molten state. However, Kawahara 616 teaches doing so to cut great quantities of polymer quickly and accurately. Therefore it would have been obvious to an ordinary artisan to hot-cut the fresh hydrous EVOH copolymer taught by Ninomiya because Kawahara 616 teaches doing so for increased efficiency, speed and accuracy.

Regarding claim 1 step 3, Ninomiya discloses introducing the EVOH copolymer hydrous composition pellets from step 2 into a dryer to reduce a water content of the pellets (p 7 ln 3-4).

Regarding claim 1 step 4, Ninomiya discloses melt-kneading the pellets from step 3, in an extruder (p 7 ln 15-16).

Regarding claim 1 step 5, Ninomiya discloses cutting the EVOH to obtain the pellet of EVOH (p 7 ln 26).

Regarding **claim 2**, Ninomiya discloses that ethylene content of said EVOH copolymer between 3 and 70 mol % (p 3 ln 32) and its degree of saponification exceeds 80 mol % (p 5 ln 2).

Regarding **claim 3**, Ninomiya discloses that said alcohol is methanol (p 4 ln 1).

Regarding **claim 5**, Ninomiya teaches conducting the reaction continuously (p 4 ln 48-49).

Regarding **claim 8**, Ninomiya discloses immersing the pellets from step 2 in a washing liquid to remove a saponification catalyst residue (p 6 ln 9-11) before step 3.

Regarding **claim 9**, Ninomiya discloses immersing the pellets from step 2 in an aqueous solution containing at least one of carboxylic acid (acetic acid), boron compound, phosphoric acid compound, alkali metal salt and alkaline earth metal salt to add said additive to the pellets (p 10 paragraph 0045, especially ln 19) before step 3.

Regarding **claim 10**, Ninomiya discloses that the drying temperature is between 40 °C and 150 °C (p 7 ln 3-4).

Regarding **claim 11**, Ninomiya discloses reducing the pellets' water content to 10 weight % or less in step 3 (p 7 ln 14).

Regarding **claim 12**, Ninomiya discloses that the water weight of the EVOH copolymer after melt-kneading is less than 1 % (p9 ln 39-41).

Regarding **claim 13**, Ninomiya discloses that water is removed from molten resin in said extruder in step 4 (p 7 ln 14-16).

Regarding **claims 14-15**, Ninomiya discloses that the pellets from step 2 are immersed in an aqueous solution containing at least one of carboxylic acid, boron compound, phosphoric acid compound, alkali metal salt and alkaline earth metal salt to add said additive to the pellets, and then supplied to said dryer of step 3.

Ninomiya does not teach adding anything in the extruder at step 4. However, Kawahara 616 teaches adding these at least one of these additives to both the washing liquid and the extruder (paragraph 0026) because it is difficult to get the additive's concentration right when adding it only in the washing step (paragraph 0064 In 42-45). Therefore it would have been obvious to an ordinary artisan to add the additive(s) in the extruder disclosed by Ninomiya because Kawahara 616 teaches doing so for better control of the additive's concentration.

Regarding **claim 16**, Ninomiya discloses cutting the EVOH copolymer in step 5 after cooling (p 12 In 36).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ninomiya in view of Yamauchi and Kawahara 616 as applied to claim 1 above and further in view of Kawahara et al. (EP 1,179,546), henceforth **Kawahara 546**.

Regarding **claim 6**, Ninomiya discloses continuously (p 4 In 48-49) (introducing the EVOH copolymer solution into to a tower type vessel (saponification column, p 12 In 12) and contacting the solution with water in said vessel to let out said alcohol with water (p 5 In 27-29). Ninomiya does not discuss flow paths or specify that the water is vapor. However, Kawahara 546 teaches continuously introducing the EVOH copolymer

solution from an upper part of the tower type vessel, introducing water vapor from a lower part of the tower such that the two fluids come into contact and then thereafter letting out said EVOH copolymer hydrous from the lower part of the tower and letting out said alcohol with water vapor from the upper part of the tower for the purpose of purging unreacted reactants from the polymer solution (col 6 ln 1-13). Therefore, it would have been obvious to an ordinary artisan to incorporate into the method taught by Ninomiya the water vapor and flow paths taught by Kawahara 546 because Kawahara 546 teaches using these to purge unreacted reactants from the polymer solution.

Response to Arguments

Applicant's arguments filed January 7, 2009 have been fully considered but they are not persuasive.

Applicant argues that Yamauchi does not disclose the methanol and water content of the EVOH solution. In response to Applicant's argument, Yamauchi's not fully disclosing the solvent composition does not detract from Yamauchi's teaching of why the water vapor is used: to change the balance of water to methanol in the solvent.

Applicant argues that Kawahara 546's method requires more drying than the method in Applicant's disclosure. In response to Applicant's argument, Kawahara 546 is relied upon to teach the claimed flow path of the water vapor in the tower vessel. Kawahara 546 is not relied upon to teach drying conditions.

Applicant argues that Kawahara 616 does not teach cutting the pellets twice. In response to Applicant's argument, Kawahara 616 teaches the first cutting step and

Ninomiya teaches the second (p 7 ln 26). All the other limitations are taught by the references as cited in the rejection above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Magali P. Théodore whose telephone number is (571) 270-3960. The examiner can normally be reached on Monday through Friday 9:30 a.m. to 6:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina A. Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Magali P. Théodore/
Examiner, Art Unit 1791

/Christina Johnson/
Supervisory Patent Examiner, Art Unit 1791